

Application No. 10/720,607
Attorney Docket No. 2003B126

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REMARKS

Claims 13, 16, 18-21, 25-27, 30-39, and 44-50 are pending in the case.

Claims 1-12, 14-15, 17, 22-24, 28-29, 40-43, and 51 were previously cancelled.

Claims 46-50 were withdrawn from consideration as being directed to non-elected subject matter.

Thus, Claims 13, 16, 18-21, 25-27, 30-39, and 44-45 are under consideration by the Examiner.

35 USC Section 112 Rejection of Claims

Claim 13 lacked antecedent basis for the terms "said first and second metal components". Claim 13 has been amended to refer back to "said rhodium and indium components", as given in the elements of claim 13. Withdrawal of the rejection is respectfully requested.

35 USC Section 103(a) Rejection of claims 13, 16, 18-21, 25-27, 30-39, and 44 over Uzio et al U.S. Patent No. 6,498,280 ("Uzio")

These claims were rejected over Uzio for its teaching of a catalyst comprising metal components numerically within the claimed ranges and the known technique of surface layer deposition of the metals. Applicants respectfully traverse because the claims are limited to a catalyst consisting of the recited catalytic elements different from those taught by Uzio and because Uzio teaches against surface layer only deposition of metals.

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The invention is recited to consist of rhodium, indium, and optionally iron, cobalt, or ruthenium deposited predominantly on the outer surface (300 microns) of a support. The claimed invention is demonstrated to provide advantageous results over the prior art when such a construction is met.

(A) Uzio requires the presence of (i) a group 8-10 metal such as platinum or rhodium, (ii) *a group 14 metal such as Pb, Ge, or Sn*, (iii) a group 13 metal such as indium, and (iv) *an alkali or alkaline earth metal*. Thus Uzio not only doesn't teach the presence of Fe, Co, or Ru (the optional claim components), but also teaches the required presence of two additional components outside the present claim. The logic of using the various components of Uzio and further optionally a halogen for the purpose intended by Uzio, are detailed sequentially in Uzio from column 2 through column 3, line 37. In any case, the two components that are outside of the present claim are clearly required by Uzio, so the invention is not taught.

Further, Uzio also clearly teaches using indium (group 13) only as a promoter for platinum to improve stability and inhibit secondary reactions; see Uzio column 2, lines 17-31. Thus any embodiment of Uzio with indium also requires platinum. The present invention is clearly not taught.

(B) While Uzio at column 2, lines 4-9 notes the advantage of using surface layer only deposition of metals, it nonetheless clearly teaches not to use surface only deposition for the described catalysts because (i) it rarely produces homogeneous platinum-to-modifier atomic ratios (indium is cited as such a modifier) and (ii) excess active phase on the surface reduces overall yield. The Uzio catalyst composition clearly differs compositionally and functionally from the claimed catalyst composition. The claimed invention is not taught. Reconsideration and withdrawal of this rejection are respectfully requested.

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35 USC Section 103(a) Rejection of claims 13, 16, 18-21, 25-27, 30-39, and 44-45 over Shepherd et al U.S. Patent No. 6,503,866 ("Shepherd")

Shepherd is cited for recitation of platinum group and indium catalyst components wherein the platinum group component may optionally be present as a surface layer. Applicants respectfully traverse because Shepherd teaches ultimately homogeneous dispersion of the catalyst components and requires homogeneous dispersion of other catalyst components, contrary to the present invention.

While Shepherd gives lip service to surface deposition at column 4, line 62 to column 5, line 6 for the platinum component, at column 4, lines 27-31, Shepherd teaches impregnating the carrier in a relatively uniform manner. Moreover, at column 5, lines 24-26, Shepherd instructs incorporation of the group 14 component in any manner that achieves homogeneous dispersion. Most importantly, Shepherd further instructs at column 7, lines 40-45, to employ a reduction step designed ... to ensure a relatively uniform and finely divided dispersion ... throughout the refractory inorganic oxide."

Shepherd, like Uzio, also clearly does not teach surface only distribution of an indium component or the expected benefits thereof that are achieved by the claimed invention.

Recall that Shepherd is more concerned with ultimate strength of the structure than location of active sites. Thus Shepherd seeks uniform dispersion to support his criteria for shape and strength as given in his claims and taught at column 8 and the examples. The dry high temperature calcination step is to create desired physical properties and crushing strength. Thus providing rhodium predominantly contained in an outer surface layer of the support having a depth of not more than 300 microns (as claimed) would be contrary to the final structure teaching of Shepherd which according to Shepherd is in a manner that, to the skilled artisan, would jeopardize the shape and strength of the catalyst for the purpose intended by Shepherd.

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CONCLUSION

Reconsideration, withdrawal of this rejection, and allowance of the claims is respectfully requested. If any points remain in issue that the Examiner feels may be best resolved through a telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

If necessary to effect a timely response, this paper should also be considered as a petition for an Extension of Time sufficient to effect a timely response. Please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1712 (Docket #: 2003B126).

Respectfully submitted,

Date: 12-8-06


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